

Matthew W. Noble, DPhil

Data Scientist

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◆ Coding portfolio: <https://github.com/MatthewWilliamNoble/CodingPortfolio> ◆

EDUCATION

Oct. 2013 – Oct. 2017	Oriel College, University of Oxford
Award:	DPhil in Materials Science at the Department of Materials Science, University of Oxford
Supervisors:	Prof. C. R. M. Grovenor and Dr S. P. Fitzgerald
Research title:	“Investigating the Bubble Lattice Phenomenon in Nuclear Materials”
Oct. 2012 – Oct. 2013	University of York
Award:	MSc in Fusion Energy at the York Plasma Institute, University of York
Sep. 2009 – Jun. 2012	University of St Andrews
Award:	BSc in Physics at the Department of Physics, University of St Andrews

DATA SCIENCE EXPERIENCE

Who Survived the Sinking of the Titanic?

My second data science project and first Kaggle competition used pandas for data manipulation and exploratory data analysis, matplotlib and seaborn for data visualization, and scikit-learn for implementation of machine-learning algorithms to answer the question: Who survived the sinking of the Titanic? Building on my first project, I explored the importance of feature selection, cross-validation to ensure generalization to new data, and parameter tuning and grid search in order to select the best classification algorithm.

Predicting Apple Stock Prices

I experimented with various SVM models within scikit-learn to predict the future Apple stock price based off of past stock price data. I expanded upon this by incorporating sentiment analysis of twitter data (tweepy, textblob, and NLTK) and changing from SVM models in scikit-learn to the Keras Sequential model.

DPhil SUMMARY

My DPhil research investigated the phenomenon of spontaneous ordering of an initially random distribution of inert gas bubbles inside of nuclear reactor components into a long-range 3D superlattice isostructural to the host metal lattice. The phenomenon occurs within narrow windows of operation – and environmental – conditions such as temperature and irradiation dose. The phenomenon was investigated by deriving a pair of coupled reaction-diffusion PDEs to describe the system, performing a linear stability analysis on the derived equations, searching for the wavelengths which would drive the experimentally observed periodic bubble lattices, and modelling the equations in MATLAB using a forward-time central finite-difference method.

KEY SKILLS

◆ Experimental design and statistical hypothesis testing.	◆ Data collection and data wrangling.
◆ Exploratory data analysis and data visualization.	◆ Machine-learning.
◆ PowerPoint and Prezi presentations and public speaking.	◆ Report writing using Word and LaTeX.

TECHNICAL SKILLS

Languages (Exp.):	Python (5 years), R (1 year), JavaScript (1 year), MATLAB (5 years), and Mathematica (5 years)
Python libraries:	NumPy, SciPy, pandas, matplotlib, Seaborn, bokeh, scikit-learn, TensorFlow, Keras, NLTK, statsmodels, and Requests
Technologies:	Git and SQL

PROFESSIONAL DEVELOPMENT

- ◆ Introduction to Probability and Statistics by MIT: OpenCourseware
- ◆ Python learning path by PLURALSIGHT | DataCamp
- ◆ Career Track: Data Scientist with Python by DataCamp
- ◆ Data Scientist Path by DataQuest
- ◆ Advanced Microsoft Office: Word, Excel, and PowerPoint by the University of Oxford